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EXAMINER

SHEWAREGED, BETELHEM

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/613,497
Filing Date: July 02, 2003
Appellant(s): CHEN, TIENTEH

Carol G. Mintz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 02/27/2009 appealing from the Office action mailed on 11/17/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,387,473 B1	Sismondi et al.	05-2002
US 2002/0142141 A1	Miller	10-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sismondi et al. (US 6,387,473 B1) in view of Miller (US 2002/0142141 A1).
2. Sismondi teaches an ink jet receiving sheet comprising a support and ink receiving layers on the support (abstract). The support is described on col. 4, line 30. The ink receiving layers comprise a non-ionic surfactant (col. 3, line 31 thru col. 4, line 29), a binder (col. 5, line 63 thru col. 6, line 48), inorganic particles (col. 7, line 11 thru col. 24), an additional surfactant (col. 7, line 43 thru col. 61), a mordant (col. 7, line 62 thru col. 8, line 61), and a hardener (col. 8, line 63 thru col. 9, line 17). The additional surfactant meets the claimed nonsiloxane surfactant. With respect to claim 8, the ink receiving layers further comprise glossiness improving agents, matting agents, a plasticizer, biocides and conventional additives; however, these additional components are added to improve the pictorial or physical properties of the image.

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3. Sismondi does not teach the use of silicone surfactant as the non-ionic siloxane surfactant. However, Miller teaches an image receptor sheet comprising an image receiving layer provided on a substrate, wherein the image receiving layer comprises a non-ionic silicone surfactant such as SILWET L-7605 [0049]. Since the SILWET L-7605 of Miller is substantially identical to Applicant's non-ionic silicone surfactant, current claims 2-5 and 7 are taught by the reference of Miller. Sismondi and Miller are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the silicone surfactant of Miller with the invention Sismondi, and the motivation would be, as Miller suggests, improving handling and sheet feeding characteristics [0049].

4. The surfactant of Miller, among other components, is mixed with at least one organic polymer, and then the mixture is coated followed by drying to form the layer (Examples). Upon drying there must be some type of bonding among the components, other wise the coated layer would fall off.

5. The relative amount of the nonionic siloxane surfactant and the nonsiloxane surfactant are not taught by the reference(s). The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the relative amount of the nonionic siloxane surfactant and the nonsiloxane surfactant, and the motivation would be to control surface tension, wetting properties and glossiness of the layer. A prima

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facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

(10) Response to Argument

Applicant's argument is based on that the Examiner's rationale for modifying *Sismondi* with the surfactant of *Miller* fails to explain why a person of skill in the art would have had a reasonable expectation of success in achieving the print medium of claim 1 if the proposed substitution were made. *Miller* would have tended to lead one of ordinary skill in the art away from replacing the "first surfactants" in *Sismondi* outermost layer because *Miller's* siloxane surfactant is taught as an optional additive for the purpose of improved handling and sheet feeding. In contrast, the hydrocarbon and fluorinated surfactants appear to be key components of the outermost and sub-layers of *Sismondi's* ink receiving sheet. Appellant contends that if one of ordinary skill in the art were attempting to improve the sheet handling and feeding properties of *Sismondi's* ink receiving sheet, that person would more likely have been prompted to try adding siloxane to one or more of the existing layer formulations of *Sismondi* rather than completely replacing *Sismondi's* outer layer, as suggested by the Examiner. **This argument is not persuasive for the following reason(s).** The Examiner is not replacing the outer layer of *Sismondi* with the image receiving layer *Miller*; instead the Examiner is showing the claimed invention by replacing the non-ionic surfactant that is contained in either one of the ink receiving layers of *Sismondi* with the non-ionic

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siloxane surfactant that is present in the image receiving layer of Miller. The key invention in Sismondi is the selective distribution of non-ionic surfactants having specific dynamic surface tension within the ink receiving layers (col. 3, lines 20-22). Sismondi continues to teach that these non-ionic surfactants having specific dynamic surface tension can be selected from hydrocarbon or fluorinated surfactants (col. 3, lines 31-34); however, there is nothing that teaches or suggests that these non-ionic surfactants having specific dynamic surface tension must be selected from hydrocarbon or fluorinated surfactants, thus the key invention in Sismondi is not the backbone of the non-ionic surfactant. Miller teaches non-ionic siloxane surfactant such as SILWET L-7605. Since the SILWET L-7605 used in Miller is substantially identical to Applicant's non-ionic silixane surfactant, the surface tension of SILWET L-7605 ranges between 20-35dyne/cm² (see claim 4 and page 6, lines 4 and 5 of current application). Therefore, since the non-ionic siloxane surfactant of Miller satisfies the surface tension of the non-ionic surfactant of Sismondi, replacing the non-ionic surfactant that is contained in either one of the ink receiving layers of Sismondi with the non-ionic siloxane surfactant that is present in the image receiving layer of Miller is proper. The motivation for combining, as shown above, is improving handling and sheet feeding characteristics; in this case the motivation is generated from the reference of Miller (see [0049]).

The Applicant further argued that the Examiner's rejection of claim 1 is also in error because the proposed modification of *Sismondi* would change the principle of operation of the primary reference, *Sismondi*. *Miller* considers the optional siloxane component secondary to the special type of crosslinked polymer that is required in the

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ink-receiving layer. In contrast, *Sismondi's* invention depends on a selective distribution of certain kinds of non-ionic surfactants having a specific value of dynamic surface tension. In *Sismondi*, the outermost ink receiving layer contains a first non-ionic surfactant with dynamic surface tension of 27 dyne/cm², and one or more other layers containing a second non-ionic surfactant with dynamic surface tension > 30 dyne/cm². Thus, if *Miller's* nonionic or cationic siloxane were substituted for the non-ionic surfactants of *Sismondi* in the outermost ink-receiving layer, in accordance with the Examiner's suggestion, the basic technical principles under which the different ink receiving layers of *Sismondi's* invention were designed to operate would be fundamentally changed. **This argument is not persuasive for the following reason(s).** The reference of *Miller* is used to teach the claimed non-ionic siloxane surfactant only, not to teach a crosslinked polymer or a cationic siloxane as indicated by the Applicant above. Either the ink receiving layer farther from the support of *Sismondi* or the other ink receiving layer(s) of *Sismondi* meet the claimed ink receiving layer because the in the claimed invention the claimed ink receiving layer is not necessarily the top layer. As established above, the surface tension of the non-ionic siloxane surfactant of *Miller* ranges from 20-35 dyne/cm², which overlaps with the surface tension of the non-ionic surfactant contained in the ink receiving layer farther from the support of *Sismondi* and the surface tension of the non-ionic surfactant contained in the other ink receiving layer(s) of *Sismondi*. Therefore, in order to show the claimed invention, the non-ionic siloxane surfactant of *Miller* can be used to replace the non-ionic surfactant contained in the ink receiving layer farther from the support of *Sismondi* **or** it can be

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used to replace the non-ionic surfactant contained in the other ink receiving layer(s) of Sismondi.

For the above reason claims 1-10 stand rejected.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Betelhem Shewareged/

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